

BIOGRAPHICAL SKETCH

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NAME Van Waes, Carter	POSITION TITLE Senior Investigator and Chief, Head and Neck Surgery Branch Clinical Director, NIDCD, NIH		
eRA COMMONS USER NAME (credential, e.g., agency login)			
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	MM/YY	FIELD OF STUDY
Earlham College, Richmond, IN	A.B.	06/80	Chemistry (with Honors)
University of Chicago, Chicago, IL	Ph.D., M.D.	06/85/87	Immunology/Medicine
University of Michigan, Ann Arbor, MI	Post-doc	12/90	Cancer Mol&Cell Biology
University of Michigan, Ann Arbor, MI	Residency	06/93	Otolaryngology
National Institutes of Health, Bethesda, MD	Post-doc	12/94	Cancer Mol&Cell Biology

A. Positions and Selected Honors

1980-86 NIH Medical Scientist Training Program Award, University of Chicago
 1987 Leon O. Jacobson Prize for Most Outstanding Thesis Presentation, University of Chicago
 1988-90 NIH National Research Service Award Post-doctoral Fellow, Otolaryngology, University of Michigan
 1990-92 Residency Otolaryngology-Head and Neck Surgery, University of Michigan, Ann Arbor, MI
 1992-93 Chief Resident, Otolaryngology-Head and Neck Surgery, University of Michigan, Ann Arbor, MI
 1993-94 Senior Staff Fellow, Tumor Biology Section, Head and Neck Surgery Branch, NIDCD, NIH
 1995-03 Investigator and Acting Chief, Tumor Biology Section, Head and Neck Surgery Branch, NIDCD, NIH
 1995-03 Acting Director of Clinical Research, NIDCD, NIH, Bethesda, MD
 2001- Investigator, Senior Investigator, Radiation Oncology Sciences Program, Ctr for Cancer Res, NCI
 2002 Elected to international Collegium Oto-Rhino-Laryngologicum
 2003- Senior Investigator and Chief, Head and Neck Surgery Branch, and
 Clinical Director, NIDCD, NIH, Bethesda, MD
 2006 RM Tiwari Oration and Medal, for lifetime contributions in Head and Neck Oncology,
 Foundation for Head and Neck Oncology, Udaipur, India
 2009 Lamberson Distinguished Lectureship Award, University of Michigan
 2010 Honorary Chair, Third International Academy of Targeted Cancer Therapy, China
 2012 Director, NIDCD Otolaryngology Surgeon Scientist Career Development Program

C. Selected Peer-reviewed Publications

5) Mullen CA, Urban JL, Van Waes C, Rowley DA, Schreiber H. Multiple cancers. Tumor burden permits the outgrowth of other cancers. J Exp Med. 1985;162:1665-82.
 6) Stauss HJ, Van Waes C, Fink MA, Starr B, Schreiber H. Identification of a unique tumor antigen as rejection antigen by molecular cloning and gene transfer. J Exp Med. 1986;164:1516-30.
 7) Van Waes C, Urban JL, Rothstein JL, Ward PL, Schreiber H. Highly malignant tumor variants retain tumor-specific antigens recognized by T helper cells. J Exp Med. 1986;164:1547-65.
 8) Wortzel RD, Stauss HJ, Van Waes C, Schreiber H. The complexity of unique tumor-specific antigens. Symp Fundam Cancer Res. 1986;38:161-82.
 27) Chen Z, Colon I, Ortiz N, Callister M, Dong G, Pegram MY, Arosarena O, Strome S, Nicholson JC, Van Waes C. Effects of interleukin-1alpha, interleukin-1 receptor antagonist, and neutralizing antibody on proinflammatory cytokine expression by human squamous cell carcinoma lines. Cancer Res. 1998;58:3668-76.
 29) Dong G, Chen Z, Kato T, Van Waes C. The host environment promotes the constitutive activation of nuclear factor-kappaB and proinflammatory cytokine expression during metastatic tumor progression of murine squamous cell carcinoma. Cancer Res. 1999;59:3495-504.

- 30) Chen Z, Malhotra PS, Thomas GR, Ondrey FG, Duffey DC, Smith CW, Enamorado I, Yeh NT, Kroog GS, Rudy S, McCullagh L, Mousa S, Quezado M, Herscher LL, Van Waes C. Expression of proinflammatory and proangiogenic cytokines in patients with head and neck cancer. *Clin Cancer Res*. 1999;5:1369-79.
- 31) Ondrey FG, Dong G, Sunwoo J, Chen Z, Wolf JS, Crowl-Bancroft CV, Mukaida N, Van Waes C. Constitutive activation of transcription factors NF-(kappa)B, AP-1, and NF-IL6 in human head and neck squamous cell carcinoma cell lines that express pro-inflammatory and pro-angiogenic cytokines. *Mol Carcinog*. 1999;26:119-29.
- 32) Duffey DC, Chen Z, Dong G, Ondrey FG, Wolf JS, Brown K, Siebenlist U, Van Waes C. Expression of a dominant-negative mutant inhibitor-kappaBalpha of nuclear factor-kappaB in human head and neck squamous cell carcinoma inhibits survival, proinflammatory cytokine expression, and tumor growth in vivo. *Cancer Res*. 1999;59:3468-74.
- 33) Thomas GR, Chen Z, Oechsli MN, Hendler FJ, Van Waes C. Decreased expression of CD80 is a marker for increased tumorigenicity in a new murine model of oral squamous-cell carcinoma. *Int J Cancer*. 1999;82:377-84.
- 34) Thomas GR, Chen Z, Enamorado I, Bancroft C, Van Waes C. IL-12- and IL-2-induced tumor regression in a new murine model of oral squamous-cell carcinoma is promoted by expression of the CD80 co-stimulatory molecule and interferon-gamma. *Int J Cancer*. 2000;86:368-74.
- 37) Loukinova E, Dong G, Enamorado-Ayalya I, Thomas GR, Chen Z, Schreiber H, Van Waes C. Growth regulated oncogene-alpha expression by murine squamous cell carcinoma promotes tumor growth, metastasis, leukocyte infiltration and angiogenesis by a host CXC receptor-2 dependent mechanism. *Oncogene (Nature)*. 2000;19:3477-86.
- 42) Sunwoo JB, Herscher LL, Kroog GS, Thomas GR, Ondrey FG, Duffey DC, Solomon BI, Boss C, Albert PS, McCullagh L, Rudy S, Muir C, Zhai S, Figg WD, Cook JA, Mitchell JB, Van Waes C. 2001. Concurrent Paclitaxel and Radiation in the Treatment of locally Advanced Head and Neck Cancer, *J Clin Oncol*, 19:800-811.
- 45) Sunwoo JB, Chen Z, Dong G, Yeh N, Crowl Bancroft C, Sausville E, Adams J, Elliott P, Van Waes C. Novel proteasome inhibitor PS-341 inhibits activation of nuclear factor-kappa B, cell survival, tumor growth, and angiogenesis in squamous cell carcinoma. *Clin Cancer Res*. 2001;7:1419-28.
- 48) Dong G, Chen Z, Li ZY, Yeh NT, Bancroft CC, Van Waes C. Hepatocyte growth factor/scatter factor-induced activation of MEK and PI3K signal pathways contributes to expression of proangiogenic cytokines interleukin-8 and vascular endothelial growth factor in head and neck squamous cell carcinoma. *Cancer Res*. 2001;61:5911-8.
- 51) Bancroft CC, Chen Z, Yeh J, Sunwoo JB, Yeh NT, Jackson S, Jackson C, Van Waes C. Effects of pharmacologic antagonists of epidermal growth factor receptor, PI3K and MEK signal kinases on NF-kappaB and AP-1 activation and IL-8 and VEGF expression in human head and neck squamous cell carcinoma lines. *Int J Cancer*. 2002;99:538-48.
- 52) Kass ES, Greiner JW, Kantor JA, Tsang KY, Guadagni F, Chen Z, Clark B, De Pascalis R, Schlom J, Van Waes C. Carcinoembryonic antigen as a target for specific antitumor immunotherapy of head and neck cancer. *Cancer Res*. 2002;62:5049-57.
- 55) Gu XX, Rudy SF, Chu C, McCullagh L, Kim HN, Chen J, Li J, Robbins JB, Van Waes C, Battey JF. Phase I study of a lipooligosaccharide-based conjugate vaccine against nontypeable Haemophilus influenzae. *Vaccine*. 2003;21:2107-14.
- 56) Thomas GR, Chen Z, Leukinova E, Van Waes C, Wen J. Cytokines IL-1 alpha, IL-6, and GM-CSF constitutively secreted by oral squamous carcinoma induce down-regulation of CD80 costimulatory molecule expression: restoration by interferon gamma. *Cancer Immunol Immunother*. 2004;53:33-40.
- 57) Mulshine JL, Atkinson JC, Greer RO, Papadimitrakopoulou VA, Van Waes C, Rudy S, Martin JW, Steinberg SM, Liewehr DJ, Avis I, Linnoila RI, Hewitt S, Lippman SM, Frye R, Cavanaugh PF Jr. Randomized, double-blind, placebo-controlled phase IIb trial of the cyclooxygenase inhibitor ketorolac as an oral rinse in oropharyngeal leukoplakia. Featured Article, *Clin Cancer Res*, 2004;10:1565-73
- 70) Van Waes C, Chang AA, Lebowitz PF, Druzgal CH, Chen Z, Elsayed YA, Sunwoo JB, Rudy SF, Morris JC, Mitchell JB, Camphausen K, Gius D, Adams J, Sausville EA, Conley BA. Inhibition of NF-kappaB and target genes during Therapy with Proteasome Inhibitor Bortezomib and Re-irradiation in Patients with Recurrent Head and Neck Squamous Cell Carcinoma, *Int J Rad Oncol Biol Phys*; 2005, 63:1400-12.
- 81) Allen C, Duffy S, Teknos T, Islam M, Chen Z, Albert P, Wolf GT, Van Waes C. NF-kappaB-related serum factors as longitudinal biomarkers of response and survival in advanced oropharyngeal carcinoma, Featured Cover Article with Commentary *Clin Cancer Res*, 2007, 13:3182-90
- 91) Allen C, Saigal K, Nottingham L, Chen Z, Van Waes C. Bortezomib-induced apoptosis with limited clinical response is accompanied by inhibition of canonical but not alternative NF-kB subunits or other prosurvival signal pathways activated in head and neck cancer, *Clin Cancer Res*, 2008; 14:4175-85
- 102) Johnson LA, Morgan RA, Dudley ME, Cassard L, Yang JC, Hughes MS, Kammula US, Royal RE, Sherry RM, Wunderlich JR, Lee CR, Restifo NP, Schwarz SL, Cogdill AP, Bishop RJ, Kim HJ, Brewer CC, Rudy SF, Van Waes C, Davis JL, Mathur A, Ripley RT, Nathan DA, Laurencot CM, Rosenberg SA. Gene therapy with human and mouse T cell receptors mediates cancer regression and targets normal tissues expressing cognate antigen. *Blood*, 2009;114:535-46.
- 103) Wang F, Arun P, Friedman J, Chen Z and Van Waes C. Current and potential inflammation targeted therapies in head and neck cancer, *Curr Opin Pharmacology*, 2009;9:389-95

105. Van Waes C, Allen C, Citrin D, Gius D, Colevas AD, Harold N, Rudy S, Muir C, Chen Z, Singh AK, Albert P, Dancy J, Morris JC. Molecular and Clinical Responses in a Phase I Study of Gefitinib Combined with Paclitaxel and Radiation in Patients with Locally Advanced Head and Neck Cancers, *Int J Rad Oncol Biol Phys*, 2010; 77:447-54
111. Freudlsperger C, Burnett JR, Friedman JA, Kannabiran VR, Chen Z, Van Waes C. EGFR-PI3K-AKT-mTOR signaling in head and neck squamous cell carcinomas: attractive targets for molecular-oriented therapy. *Expert Opin Ther Targets*. 2011;15:63-74.
121. Gilbert J, Lee JW, Argiris A, Haigentz M, Feldman LE, Jang M, Arun P, Van Waes C, Forastiere AA. E1304 - Phase II two arm trial of the proteasome inhibitor PS-341 (VELCADETM) in combination with irinotecan or PS-341 alone followed by the addition of irinotecan at time of progression in patients with locally recurrent or metastatic squamous cell carcinoma of the head and neck (E1304): A trial of the Eastern Cooperative Oncology Group, Head and Neck, 2012, Jul 13. doi: 10.1002/hed.23046. [Epub ahead of print]
123. Baum BJ, Alevizos I, Zheng C, Cotrim AP, Liu S, McCullagh L, Goldsmith CM, Burbelo PD, Citrin DE, Mitchell JB, Nottingham LK, Rudy SF, Van Waes C, Whatley MA, Brahim JS, Chiorini JA, Danielides S, Turner RJ, Patronas NJ, Chen CC, Nikolov NP, Illei GG. Early responses to adenoviral-mediated transfer of the aquaporin-1 cDNA for radiation-induced salivary hypofunction. *Proc Natl Acad Sci*, 2012;109:19403-7
125. Herzog A, Bian Y, Vander Broek R, Hall B, Coupar J, Cheng H, Sowers A, Cook J, Mitchell JB, Chen Z, Kulkarni A. B., and VanWaes C. PI3K/mTOR inhibitor PF-04691502 anti-tumor activity is enhanced with induction of wild-type TP53 in human xenograft and murine knockout models of head and neck cancers, *Clin Cancer Res*, 2013; 19:3808-19
- Featured in CCR Translations Commentary, Ekshyyan et al, Clin Cancer Res 2013;19:3719-3721**
126. Friedman J, Wise SC, Hu M, Gouveia C, Freudlsperger C, Kannabiren V, Arun P, Mitchell JB, Kan J, Brega N, Chen Z, Van Waes C. HSP90 inhibitor SNX5422/2112 targets the dysregulated signal and transcription factor network and malignant phenotype of head and neck squamous cell carcinoma, *Translational Oncology*, 2013;6:429-41 **Featured Cover article**

C. Research Support

Current

Clinical Co-Principle Investigator with Silvio Gutkind, NIDCR, NIH Director's Bench to Bedside Proposal, "Targeting mTOR as a novel mechanism-based therapy for head and neck cancer" 2008-
Supports current phase II trial of mTOR inhibitor rapamycin targeting PI3K-mTOR pathway in HNSCC

Principal Investigator, NIDCD Intramural Project ZIA-DC-000016 1994-2014

NF-kappaB in Molecular Pathogenesis and Therapy of Head and Neck Cancers that Affect Human Communication

Determine mechanism of NF-κB activation, function in gene expression and malignant phenotype, and targets for therapy of head and neck cancer. Project identified PI3K as key activator of NF-κB in HNSCC.

Principal Investigator, NIDCD Intramural Project ZIA-DC-000073 2008-2014

Signal and Transcription Factor Network Interactions in Head and Neck Cancer

Determine nature and mechanisms of signal and transcription factor networks interactions in molecular pathogenesis and therapy including PI3K-mTOR inhibitors

Principal Investigator, NIDCD Intramural Project ZIA-DC-000074 2008-2014

Genomics and Proteomics of Head and Neck Cancer

Determine nature and mechanism of genomic and proteomic alterations in HNSCC

Principle Investigator, NIDCD Core for Clinical Research and Care ZIA-DC-000075, 2008-2014

Oversee human subjects research and clinical trials program for NIDCD

Recent

Principal Investigator, NCI Clinical Trials Agreement CCR-00676 2007-2010

With Millennium Pharmaceuticals for clinical trial support, Phase I study of bortezomib and cetuximab without or with cisplatin for head and neck cancer

Co-Principal Investigator, NIH Director's Bench to Bedside Award, 2004-2006

"Novel Approach for treatment of squamous cell malignancies with 17-AAG and bortezomib"